

DECEMBER, 1949

The Review of Gastroenterology

OFFICIAL



PUBLICATION

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

Depressionless Relaxation for Gastrointestinal Surgery

Intestinal Bacteria, Pathogenic and Nonpathogenic

Gastric Ulcer with Liver Disease, Report of a Case

Anoxic Inhibition of Small Bowel Peristalsis



Fifteenth Annual Convention

New York, N. Y., 9, 10, 11 October 1950

VOLUME 16

NUMBER 12

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*The Pioneer Journal of Gastroenterology, Proctology and Allied Subjects
in the United States and Canada*

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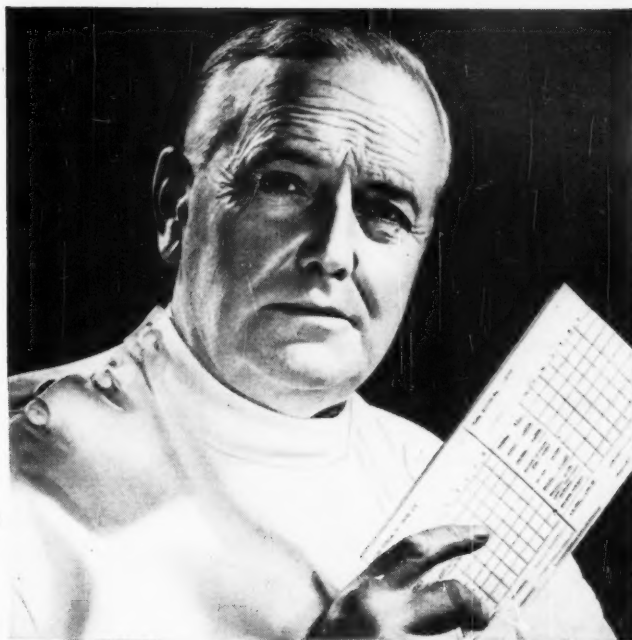
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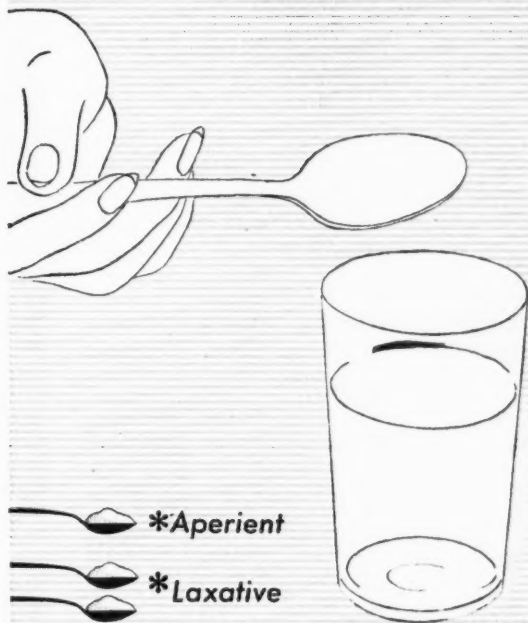
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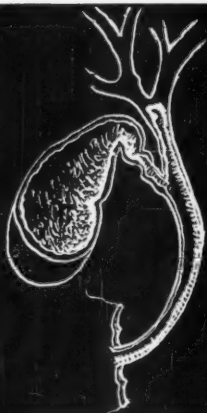
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1. Gastroenterology 3:54, 1944
2. Am. J. Roentgenol. 19:341, 1928

3. J. Lab. and Clin. Med. 18:1016, 1933
4. J. Lab. and Clin. Med. 19:567, 1934


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DEPRESSIONLESS RELAXATION FOR GASTROINTESTINAL SURGERY*

A. L. SORESL, M.D.
New York, N. Y.

In many fields of human activities progress is handicapped as much by failure to take full advantage of the actual knowledge, which is the patrimony of modern man, as by lack of knowledge.

When the miracle of the conquest of pain by inhalation of chloroform and ether occurred, modern surgery under general anesthesia was born. A second miracle occurred when local anesthesia was discovered. The progress of surgery proceeded *pari passu* with the progress of surgical anesthesia and judging by what both have accomplished their achievements are only short of miraculous. Yet the ideal of obtaining abdominal relaxation, without depression, relaxation which is absolutely essential in abdominal surgery, has not been attained by the combined means in general use. Surgical anesthesia and depression are still conjoined inseparable twins. The toll for relaxation is depression, its amount being higher the more and the longer lasting relaxation the Surgeon requires. That this statement faithfully indicates the true present status of surgical anesthesia is proven by these two quotations from the most authoritative modern monographs on the subject.

From Lundy, *Clinical Anesthesia*: "In order to produce the desired effect ether must be introduced in sufficient quantity in the blood stream by way of the lungs to *depress the central nervous system to the desired extent*. Poor relaxation which prevents the surgeon from accomplishing his best is bound to result if the anesthetist does not administer enough of the anesthetic agent. If the internist has chosen a mild anesthetic agent and he observes that the surgeon is handicapped by insufficient relaxation, he should not object to the addition of a more powerful anesthetic agent, even though the probability of postoperative complications is increased. It is unfair to the surgeon to expect him to produce good operative results when he cannot obtain adequate exposure.

The patient's nervous system is particularly affected in at least two ways by general anesthesia produced by inhalation. First, the anesthetic agent exerts a direct effect; second, nerve tissue may be indirectly deprived of adequate amounts

*Awarded a Certificate of Merit in the National Gastroenterological Association 1949 Prize Award Contest.

of oxygen. This is particularly significant in the case of the brain. If the brain has undergone destruction during the period of anesthesia, there is, as far as I know, nothing that can be done in the postoperative period to restore the brain tissue. Patient in such a condition usually will succumb within ten to twelve hours." (Italics are the author's).

From Pitkin, *Conduction Anesthesia*: "Spinal anesthesia causes pronounced alteration of the mechanism of blood-pressure control. There is paralysis of vasoconstrictor fibres to the arteries, with loss of ability to constrict, loss of tone and decreased peripheral resistance. The fibres involved are from the thoracolumbar area, so that the effect on the blood pressure has a direct relationship to the number of fibres involved, which in turn depends upon the height of the anesthesia."

The expressions "general anesthesia" and "local anesthesia" were justified at the time of their birth, because the fact that living flesh could be dissected without pain, as if it were the flesh of a cadaver, was such a super-wonderful achievement that the pioneers were justified in being completely dazzled by it. These terms should have been abolished long ago because neither the gases inhaled nor the drugs injected to induce general anesthesia, nor the drugs used in the various modalities of local anesthesia, possess per se, direct true anesthetic properties. Gases and drugs used safely for general anesthesia are no more anesthetic than most poisonous gases, or the policeman's club and other traumatic agents and drinks which render a person unconscious, or the pathological conditions, such as epilepsy, which cause the patient to lose consciousness. Local anesthesia simply blocks the passage of electrons, nerve impulses, nerve current or whatever one likes to call the energy generated by and running along nerve structures, whether afferent or efferent and consequently have no true, direct anesthetic powers per se.

If I point out how erroneous it is to make the expressions "general anesthesia" and "local anesthesia" synonymous with unconsciousness and neural block, I do so not only because they are philologico-physiologic monstrosities, but mainly because they have created a wrong philosophy of depressive surgical anesthesia. In fact, the unconsciousness generated by general anesthesia has created the false conception that sensory impressions and their effects are abolished while the patient is rendered unconscious by general anesthesia as proven by the following quotations from Medical Dictionaries: "Unconscious: insensible, not receiving any sensory impressions." (Dorland). "Unconsciousness: the state of being without sensibility and having abolished reflexes." (Gould). "Unconsciousness: not conscious, insensible." (Stedman).

The expression local anesthesia emphasizes only the anesthetic power of anesthetic solutions and by completely ignoring their equally important paralyzing power has totally concealed the possibility and the wonderful potentialities, which will be pointed out shortly, of limiting the block to afferent sensory structures when anatomical conditions permit such limitation. The paramount importance

of these facts in connection with depressionless relaxation will become quite evident if we consider the fact that patients rendered unconscious by general anesthesia become totally relaxed only through extreme depression of vital energies. Those submitted to spinal anesthesia are inherently suffering from depressive symptoms, solely because these fundamentally wrong conceptions have prevented the creation and development of a logical philosophy of depressionless anesthetics, based on firmly established data and facts, which would have rendered possible long ago the depressionless relaxation for gastrointestinal surgery to be described in this communication.

These basic facts are: the law of Bell and Magendie; the demonstration given by François Franck that a nerve block constitutes, functionally, a physiological section of the blocked nerves; the occurrence of various normal reflexes originating from stimulation of the receptors of afferent neurons; the essentiality of afferent neurons to the occurrence of reflex arcs; the peculiar independence and interdependence of cerebrospinal and autonomic structures; the fact that complex autonomic cerebrospinal reflexes are the basic manifestations of all vital activities; the fundamental contribution of Woodworth and Sherrington demonstrating that reflexes occur independently of the brain.

I shall first take up consideration of the experiments of Woodworth and Sherrington because they constitute the open sesame which reveals the true fundamental mechanism and pathogenesis of most functional and organic disorders and diseases as being due to abnormal disorderly reflexes generated by short-circuited nerve structures. Specifically these experiments make self-evident the mechanism of the various complex sensory, motor and visceral disturbances caused by surgical injuries and why they are not properly and logically controlled by general anesthesia.

Woodworth and Sherrington reported that unanesthetized decerebrate animals react to central stimulation of the sciatic nerves with alternate movements of the limbs, dilatation of the pupils, opening of the mouth with retraction of lips and tongue, snapping of the jaws, snarling or plaintive vocalization, accompanied by transitory increase of arterial blood pressure. The authors state that these manifestations are "pseudoaffective reflexes resulting from afferent impulses, that were the brain intact, would, we presume, evoke pain. Obviously the destruction of the hemispheres and thalamus also destroys the neural mechanism of consciousness, but leaves fairly intact the reflex motor machinery, whose concurrent action is habitually taken as an outward accompaniment or expression of an inward feeling. When the expression occurs, it may be assumed that had the brain been present, the feeling would have also occurred."

The experiments of Woodworth and Sherrington prove beyond possibility of a doubt that even physical elimination of the brain itself with the obvious simultaneous elimination of the psyche and of consciousness does not affect the irritability and conductivity of nerve fibres and consequently does not produce real anesthesia. The patient who has lost consciousness following general anesthesia

does not complain of pain, simply because while in the unconscious state he loses all awareness of the outside world, of himself, of life itself, but preserves intact the organs and mechanism of sensation. This means that, unless the vitality of the patient is so depressed that he cannot react, stimulation of afferent structures will be followed by motor and visceral reflexes which will prevent relaxation and cause depression, independently of the presence or absence of consciousness and of the brain itself. Stimulation, or better irritation, of the nerve fibres of patients under general anesthesia does evidently generate identical abnormal disorderly reflexes, as the stimulation of the sciatic nerves of decerebrate animals, because unconsciousness attained by general anesthesia, decerebration or any other means does not abolish the irritability and conductivity of nerve fibres. Consequently, the direct indiscriminate irritation of nerve fibres en masse by surgical injuries, which is abnormal per se, can only generate abnormal, disorderly reflexes, unless the injured fibres are blocked centrally to the injury. Experimentally, this fact can be unmistakably demonstrated if we stimulate the sciatic nerves of a decerebrate animal as Woodworth and Sherrington have done, with the variance that novocaine is injected in one of the nerves, the left for instance, centrally to the locus of stimulation. The violent, disorderly, depressive reflexes already described will follow stimulation of the right unblocked nerve, while no reflexes or reaction of any sort will occur when the left blocked nerve is stimulated. The problem facing us then is whether or not it is possible to obtain the prevention of all the disturbing, depressing reflexes which plague gastrointestinal surgery by nondepressing means. This means the simultaneous abolition of all the abnormal, disturbing, depressing reflexes which originate in the brain, in the spinal cord and in the autonomic structures when surgical injuries irritate, indiscriminately en masse, afferent and efferent fibres, and cause the abnormal impulses generated in them to run amuck toward the centers and the periphery. The first glimpse of the possibility of realizing this ideal was fortunately offered to me many years ago by the following case:

I received an urgent call to take care of a thin, poorly nourished middle aged man who had collapsed suddenly during a drunken brawl. The patient was unconscious and pulseless and there being a very definite history of duodenal ulcer the diagnosis and the indications for emergency treatment were self-evident. Summarily stated, the patient was immediately operated under local anesthesia of the abdominal wall and the mesenteries, while restorative measures were instituted and preparations for a direct blood transfusion were made. The operation lasted about forty-five minutes, blood was aspirated; the perforation of the duodenum closed; a clamppless posterior gastroenterostomy performed and the abdomen closed without drains. Port wine proctoclysis was started about half an hour after the operation.

The following facts induced me to start the experimental and clinical investigations which led to the realization of depressionless relaxation and depressionless gastrointestinal surgery.

First, the almost immediate recovery response, evidenced by the fact that at the end of the operation the pulse had become perceptible and began to improve slowly but progressively even before the patient was given 500 cc. of blood.

Second, relaxation was ideal and bleeding practically negligible, these two conditions allowing very rapid, gentle and clean surgery.

Third, there was no abdominal reaction. The patient never vomited (nothing was administered by mouth for three days) and the abdomen remained soft and flat.

Fourth, the patient remained unconscious for about 48 hours and semi-conscious for about 24 additional hours, while his condition was improving steadily. A proper analysis and synthesis of these facts prove:

Surgery per se can be neither shocking nor depressive. In fact, surgery may have unique antishock recuperative potentialities, because it removes the direct causative factors which are responsible for the shock or the depression existing prior to the operation and which, if not eliminated, would prevent recovery.

Relaxation was ideal, because the psyche had been completely blocked by the effects of alcohol and simultaneous loss of blood, and the occurrence of cerebrospinalsympathetic and parasympathetic reflexes was prevented by the novocainization of the abdominal wall and the mesenteries. The bleeding was negligible evidently because of the depressed condition of the patient and the loss of blood.

The lack of abdominal reaction was obviously due essentially and primarily to the rest induced on the operated organs by the blocking of their mesenteries and the immediate surgery.

The fact that the patient made an ideal, uneventful recovery while unconscious is of the greatest clinical significance, because he was far from being what could be called a nice patient and was not easy to manage after he recovered consciousness. This smooth recovery proved that while the psyche remains blocked by nondepressive means, the recuperative processes, unhampered by harmful psychic reflexes, are as effectively active as during natural sleep.

While I felt that the ideal results obtained in this case were due mainly, if not exclusively, to a series of fortunate circumstances which made possible a truly depressionless gastrointestinal surgery, nevertheless they represented a challenge to attempt to translate into every day surgery the fascinating clinical potentialities so clearly revealed. I omit for the sake of brevity, and as not essential to even mention, the experimental and clinical investigations which led to the successful depressionless simultaneous blocking of the structures which generate disturbing, depressing reflexes during and immediately after gastrointestinal surgery.

Blocking of the psyche:—The well known soporific powers of alcohol and ether have been utilized synergetically in order to induce loss of consciousness. I wish at this point to pay my tribute of deep gratitude to my departed friend, Doctor Gwathmey, who so patiently and intelligently contributed to the develop-

ment of the rectal port wine-ether-oil block of the psyche. Unconsciousness is maintained indefinitely during the operation by a continuous rectal drip of oil-ether mixture. A state of postoperative somnolence is maintained indefinitely by port wine proctoclysis administered by the *Harris drip*. I underscore most emphatically *Harris drip*, because it is the only means by which the amount of wine introduced rectally is ideally self-regulated by the absorbing possibilities and requirement of every patient. I warn the reader against the rectal administration of wine by the Murphy drip, because it is a potentially dangerous method of administering fluid by rectum and liable to cause very undesirable distention of the colon and small intestine. The Harris drip has also the unique property of allowing free expulsion of gas and the little fecal matter which forms early in the postoperative period. Port wine is used for many reasons, namely: it renders the administration of the oil-ether mixture absolutely harmless, because the mucosa becomes tannized and consequently hardened by the tannin contained in the port wine; it supplies calories through its high content of the best alcohol and sugar, not to mention its vitamins; it renders the postoperative proctoclysis absolutely tolerable to even the fussiest patient, because not only does it maintain a state of somnolence, but also because the tannin anesthetizes the rectal mucosa so that many patients regain full consciousness without knowing that a continuous proctoclysis had been administered. It is no difficult task to maintain a happy state of recuperative somnolence for at least two days postoperatively. The only obstacles I have met do not come from patients: they come from over-anxious relatives who cannot understand why their dear ones should sleep so long; from physicians who still expect the patient to react and from overzealous nurses who believe that alcohol rubs and change of linen are more important than the undisturbed somnolence which represents the greatest and absolutely unsurpassable help toward speedy, complete recovery.

Blocking of afferent somatic and visceral structures located in the cord without affecting efferent structures:—It is self-evident that complete anesthesia without depression and prevention of disturbing reflexes requires that the blocking be limited to afferent structures. Simultaneous blocking of efferent structures is not only superfluous, it is potentially most dangerous, because it hampers or suspends vital motor and visceral activities. Yet all modalities of subarachnoid and peridural blocks in current use simultaneously affect afferent and efferent structures. Since the general acceptance of the law of Bell and Magendie, anatomists have described loci where somatic and visceral afferent and efferent structures are separated from one another. Outside the dura, in the peridural space the efferent and afferent roots are physically separated from one another by septa. Within the dura, the efferent roots and all efferent cordal structures are located in the anterior aspect of the subarachnoid space, while the afferent roots and all afferent cordal structures are located in the posterior aspect. Taking advantage of these anatomical conditions it has been possible to block afferent cordal structures without affecting in the least the efferent either in the subarachnoid or in the peridural spaces.

I omit description of clinical, experimental and technical details already published in other communications concerned with the modalities of pure afferent blocks called "Pure posterior roots subarachnoid block" and "Spinal ganglia block". "Pure posterior roots subarachnoid block" is obtained by injecting very slowly an average dose of 2 cc. of 10 per cent spinal fluid-novocaine solution in the subarachnoid space either through an intervertebral space or through the sacral canal, while the patient lies on the back. The markedly hyperbaric 10 per cent spinal fluid-novocaine solution remains wholly in the posterior aspect of the subarachnoid space and consequently can affect only the posterior afferent cordal structures. That it does so is proven clinically by the fact that there is no drop of the blood pressure and conscious patients anesthetized by the "pure posterior roots block" can freely move their limbs.

"Spinal ganglia block" is obtained by injecting very slowly in the peridural space an average dose of 5 cc. of 10 per cent novocaine-saline solution. The injection can be done through any intervertebral space with the patient in sitting position or through the sacral canal with the patient lying on the back in Trendelenburg position. The proof that with "spinal ganglia block", performed secundum artem, only afferent structures are affected is the fact that patients who had it administered for the control of chronic pain, while anesthetized from the waist down can freely walk, although they step uncertainly as tabetics do.

Blocking of sympathetic and parasympathetic visceral structures:—All anesthetists and surgeons have had daily occasion to notice the intensely depressing effects of abnormal, disorderly reflexes occurring in visceral sympathetic and parasympathetic structures when pulling on retractors. Hand exploration, excessive packing, pulling on and crushing abdominal organs, specifically the mesos, and any other procedure seriously disturbs the normal quiet of the abdominal organs genetically protected against direct violence. Yet blocking of the nerve structures of the *locus operationis* is a very rarely practiced procedure. I fervently hope that some day all abdominal surgeons will realize the immense benefits inherent to *infiltration of the mesos* with a 2 per cent solution of novocaine to which 1 per cent alcohol has been added. It does not only prevent operative depression in all cases, in many it renders detection and disposition of structures located between peritoneal folds easier and safer. In the immediate postoperative period, it prevents the occurrence of reparative but still disorderly injury reflexes from disturbing the normal vital reflexes of the other viscera and consequently renders immediate postoperative and later recovery comfortably smooth and free from most of the annoyances and potentially serious complications accepted as inherent to abdominal surgery. I wish to emphasize the fact that only the peripheral fibres of the organs which are operated and not the autonomic ganglia should be blocked. The block limited to the peripheral fibres means that no impulse and no disturbing reflexes will be generated from the surgically injured but neurologically isolated organs. Blocking of autonomic ganglia would mean serious interference with the vital activities of other viscera and consequent depression.

Depressionless anesthetics:—I shall let Dr. A. Perillo, F.I.C.A., who succeeded Dr. Gwathmey as anesthetist, briefly describe and comment on the actual procedure.

"For the past thirty years, Dr. Soresi has been earnestly working for an ideal anesthesia and from my observation of the Gwathmey-Soresi method I honestly feel he has at last obtained his much desired goal.

"The colonic ether-oil-wine anesthesia is a basal anesthesia. It relieves the patient of all apprehensive fear for the impending operation thereby producing a state of analgesia and this method ordinarily must be supplemented by inhalation anesthesia in order to render complete surgical anesthesia. The patient may not be deeply asleep and yet in a condition of complete analgesia. Some patients retain the power to understand and to reply sensibly even though complete analgesia is present. Colonic oil-ether and wine is essentially not a deep narcosis and this fact must be remembered; therefore supplementing becomes necessary for surgical intervention in the abdominal cavity and this is done by continuous rectal drip of oil-ether. Postoperatively, at conclusion, patient usually continues to sleep for a few hours thereby enabling the first wound reactions to pass without pain. The valuable attribute of this method is the pleased surprise of the patients on awakening to know the operation has been done without his having known anything about even its beginning.

"One hour before the scheduled operation, from 100 to 200 cc. of port wine are administered slowly by rectum, to be followed 20 minutes later by the oil-ether emulsion. During this time some patients go through the induction and excitement stage as is usually observed in ether inhalation anesthesia. The patient may become talkative, restless, emotional and sometimes belligerent, reacting according to his nature. When this stage is over, he is in a state of analgesia and is then brought up to the O.R. He is cooperative, conscious of his surroundings and, at the same time, relieved of all fear and apprehension of the impending ordeal. His pulse goes up during the excitement period, but then returns to normal and remains constant. The breathing is normal. The color is good. The spinal ganglia block or posterior roots subarachnoid block is then given and patient draped. Within 10 minutes we have a completely relaxed abdomen with a patient semi-awake, answering questions asked, and, at the same time, cooperative and at ease with no concern as to the impending operation. Pulse remains constant, no appreciable change in blood pressure; dry skin, normal breathing. The surgeon is in his glory, working with a completely relaxed abdomen. On several occasions, patients coughed with absolutely no effect upon the abdominal muscles. Patients were able to move the legs when asked to do so."

CONCLUSIONS

I have attempted to present and discuss, for the first time, two contrasting philosophies of abdominal relaxation. I hope I do not appear too pretentious if I ask anesthetists and abdominal surgeons, who are responsible for the stupendous achievements of modern visceral surgery, to consider kindly my efforts to bring

about a depressionless anesthescinesia giving complete abdominal relaxation and permitting depressionless visceral surgery.

There cannot be any doubt that the moderate amount of alcohol and ether used rectally act as a stimulant. There can be some doubt about the nondepressive effects of "pure posterior roots subarachnoid block", "spinal ganglia block" and blocking of visceral autonomic fibres. Novocaine is depressive only when it blocks efferent motor and visceral structures, otherwise it actually is a stimulant. When novocaine is injected in visceral folds it is true that it blocks afferent and efferent autonomic fibres, but their block has no depressive effects, because it does not affect any center, it simply disconnects neurally the blocked organs from their central connections.

I feel confident that abdominal surgeons and anesthetists will find, as I have, that patients too desperately ill to withstand even a minimum additional anesthesio-surgical depression will be able to undergo life saving immediate surgical interventions by simultaneous blocking of the psyche, afferent spinal roots and autonomic visceral fibres by nondepressing means, which make possible depressionless visceral surgery.

BIBLIOGRAPHY

- Soresi, A. L.: Epidural anesthesia. *Med. Rec.*, 1932.
Soresi, A. L.: Have we attained the ideal anesthesia. *Anesth. & Analg.*, 1937.
Soresi, A. L.: Episubdural Posterior Roots Anesthesia and Analgesia. *Med. Rec.*, 1941.
Soresi, A. L.: Nerve Short Circuits as a Theory of Pain. *Anesth. & Analg.* (Dec.), 1948.
Soresi, A. L.: Is Pain a physiological or a pathological sensation. *Med. Rec.*, (Dec.), 1948.
Soresi, A. L.: Control of Intractable Pain by Spinal Ganglia Block. *Am. J. Surg.*, (Jan.), 1949.
Soresi, A. L.: Slant postero-anterior and pure posterior roots subarachnoid block. (To be published).
Woodworth and Sherrington: A pseudoaffective reflex and its spinal path. *J. Physiol.*, 1904.

ANOXIC INHIBITION OF SMALL BOWEL PERISTALSIS

BERNARD J. FICARRA, A.B., Sc.B., M.D.*

Brooklyn, N. Y.

The occurrence of postoperative adynamic ileus and small bowel obstruction has been a serious complication following major surgery. Delayed treatment of these complications may result in an excessive morbidity and on occasion a fatality. Therefore any information which contributes to the elucidation of this problem is worthy of recording.

During the course of physiologic experiments on the small intestine of rabbits, certain qualitative observations on intestinal peristalsis were noted. These observations concern the inhibiting effect of low oxygen concentrations on intestinal activity. This inhibition of peristalsis may be a cardinal factor in the production of the postoperative complications previously mentioned.

It is not the present purpose to discuss the relationship between the diminution of peristaltic activity and the production of adynamic ileus and/or obstruction. Rather, it is the primary purpose of this communication to record the qualitative changes in the small intestine of the rabbit as they were observed in the experimental laboratory.

Prior to the presentation of these observations, it is not amiss to discuss briefly certain terms. The word anoxemia has the connotation of expressing the condition of oxygen want in the body. There are situations in which the body is in need of oxygen caused by reasons other than the deficiency of oxygen in the blood. For this reason the suggested use of "anoxia" for the "oxygen-want" was recommended¹.

This term includes all conditions of oxygen-want exclusive of cause. Three types of anoxia were originally recorded. These were anoxic, anemic and stagnant anoxia. To this group another, histotoxic anoxia, was added². A more preferential term, hypoxia has been proposed³. The suggestion was made that hypoxia be used when inspired air contained oxygen over 12 per cent and that anoxia be used when inspired air contained percentages below 12 per cent³.

According to common usage, oxygen deficiency is categorized as follows:

1) *Anoxic anoxia (anoxemia)* meaning that there is a lack of oxygen in the arterial blood. The oxygen tension in arterial blood is low and the hemoglobin, therefore, is not saturated with oxygen up to its normal content.

2) *Anemic anoxia* signifies that the arterial blood contains oxygen at a normal tension, but there is a shortage of functioning hemoglobin.

3) *Stagnant anoxia* indicates that although the arterial blood has a normal amount of oxygen, held under normal tension, it is not liberated in sufficient quantities for satisfactory utilization by the body tissues.

4) *Histotoxic anoxia* suggests its own definition namely that the tissue cells are poisoned and cannot make proper use of oxygen.

*Professor Research Biology, St. John's University, Brooklyn, N. Y.

EXPERIMENTAL OBSERVATION

Previous experimentation on the significance of serosal arterioles in small bowel resuscitation was made¹. During the course of the experiment on rabbits the effect of anoxia on peristalsis was noted. In view of the fact that no specific preparations were made for a quantitative estimation of oxygen administration, only our qualitative observations are recorded.

The method employed for the induction of anoxia was the administration of open drop ether anesthesia. Thus this experiment did not differentiate the four types of anoxia. A strict adherence to terminology would confine the type of anoxia to anoxic anoxia or anoxemia. Initially it was observed that surgical anesthesia with ether diminishes the rate and activity of small bowel peristalsis for the entire period that the drug is administered. Peristalsis, although sluggish, is maintained with an adequate mixture of ether and oxygen.



Fig. 1—Anoxic inhibition of small bowel peristalsis characterized by a uniform dilatation of the intestinal loop. Viability of the bowel segment is demonstrated by the preservation of blood supply.

A gradual diminution of oxygen concentration advancing to the state of hypoxemia and finally anoxemia was produced by increasing the ether content of the mixture. The gradual cessation of peristalsis was noted during this diminution of oxygen consumption. The segments of small intestine under observation gradually lost their ability to contract and relax. The entire loop under observation assumed a uniform dilated appearance with the intestinal width similar throughout the entire length (Fig. 1). This was a markedly different appearing segment than that of stimulated intestine with active peristalsis (Fig. 2). In Figure 1 peristalsis is apparently abolished in spite of the normal appearing blood vessels.

An unexpected reaction occurred when a rapid, fulminating anoxemia was produced. Under this circumstance the small intestines undergo a markedly visible hyperperistaltic activity. The initial hyperperistaltic waves are of short duration. Within 60 seconds a generalized intestinal paralysis rapidly ensues. The onset of

paralysis is followed by a dilation of intestinal loops similar to the state of an adynamic ileus.

DISCUSSION

As a preliminary statement, it must be remembered that alterations in peristaltic activity do not depend on one factor alone. By this it is meant that hypoxia does not exert a selective affinity for the vascular channel of the small intestine.

Enteral hypoxia is also dependent upon an anoxic response of the nervous system and the carbon dioxide concentration in the blood of the intestine under observation.

Two other theoretical considerations must be mentioned as possible physiologic factors in the inhibition of intestinal motility. First, reflex vasoconstriction of



Fig. 2—Active peristaltic activity of an intestinal loop minus anoxic inhibition.

the small bowel may be accelerated due to a direct effect on the sympathetic system or due to increased adrenalin secretion. Anoxia has been indicted by some investigators as producing a hyperadrenalism^{5, 6}. Secondly, hypoxia attacks the muscle fibre itself and its amplitude more than its contractility. Hypoxia also blocks the transmission of stimuli which physiologically originate autonomously in the intestine⁷. Therefore, the two effects of increased adrenalin and the inhibition of muscular and neural activity must be considered as factors retarding intestinal peristalsis. All the effects involved, however, are precipitated by anoxia.

The current observation of the effects of anoxia on the small bowel of rabbits has brought forth the imperative necessity for additional similar studies. Up to the present it can be stated that anoxia, of whatever etiology, is a potent inhibitor of intestinal peristalsis. The diminution of peristaltic activity may be rapid or

gradual depending upon the rate of induction leading to the anoxic state. The end result, however, is the same, namely, a complete cessation of peristaltic activity. This loss of motor activity occurs in spite of the viable appearance of the intestinal loop, and an apparently normal blood supply.

This inhibition of motor activity is not irreversible. Adequate oxygenation with eradication of the hypoxic state enables the intestine to return to normal physiologic activity. However, the persistence of anoxia to the point of tissue anoxia producing cell death results in a nonviable intestine which cannot be revived.

The clinical importance of this observation on anoxia concerns the choice of anesthetic drugs in gastrointestinal surgery. Those drugs such as nitrous oxide and pentothal sodium which instigate anoxia, should be employed with caution in those patients in whom poor respiratory or circulatory physiology is known. Furthermore, such anesthetic agents should be employed guardedly in the surgical treatment of patients with incarcerated and/or strangulated herniae. Underneath the hernia may be found a segment of intestine whose vascular supply is embarrassed or diminished. The administration of an anoxia-producing anesthetic agent may be sufficient to cause death of the intestinal loop involved. Under this circumstance a simple operative procedure now becomes a major one with the necessity for bowel resection. A major operation such as this in a patient previously debilitated by his illness may be sufficient to cause a fatality.

These qualitative observations on anoxia have demonstrated the need for additional quantitative work on this subject. A study of this type might produce some valuable knowledge of the problem of paralytic ileus and/or small bowel obstruction following operations.

It is hoped that the results of a quantitative study of this type will soon be available. However, many difficulties are found which hinder trustworthy experimental conclusions.

These problems are:—1. During the course of experimentation, it is difficult to preserve the normal physiologic state of the intestine as it is found in the peritoneal cavity.

2. The long length of the intestinal tract makes it difficult to obtain quantitative results of sufficient accuracy.

3. The performance of artificial abdominal openings for observation interferes with the normal health of experimental animals. Thus, again, the ensuing results would not be accurate.

SUMMARY

1. Experimental observations on the inhibition of small bowel peristalsis due to anoxia are recorded.

2. The possible causation of postoperative adynamic ileus following the induction of anoxia is mentioned.

3. The danger of anoxic states on intestinal peristalsis suggests the need for a careful selection of anesthetic agents prior to surgery.

4. The value of, and the need for additional quantitative studies on anoxia and peristaltic activity are emphasized.

REFERENCES

1. Barcroft, J.: *Lancet*, **2**:485, 1920. *Nature*, **106**:125, 1920-21.
2. Peters, J. P. and Van Slyke, D. D.: *Quantitative Clinical Chem.*, vol. 1. Williams and Wilkins Co., Baltimore, 1932.
3. Wiggers, C.: *Ann. Int. Med.*, **14**:1237, 1941.
4. Ficarra, B. J.: *Arch. Surg.*, **59**:5, (Nov.), 1949.
5. Cannon, W. B. and Hoskins, R. G.: *Am. J. Physiol.*, **29**:274, 1911-12.
6. Van Liere, Ed. J.: *Anoxia, Its Effect On The Body*. University of Chicago Press, 1943.
7. Garcia-Conde Gomez and Bonnet Seone: *Medicina Española*, **16**:73, (Aug.), 1946.

INTESTINAL BACTERIA, PATHOGENIC AND NONPATHOGENIC

ANTHONY BASSLER, M.D., F.A.C.P., LL.D.

and

A. GERARD PETERS, M.D., B.A.
New York, N. Y.

The subject of intestinal bacteria is quite extensive and many aspects of it are not fully known. We have definite diseases caused by definite organisms as, for example, typhoid fever, shigellosis or salmonellosis, and there are many other intestinal organisms borderline in pathogenesis. Others are pathogenic or neutral under certain associated conditions and some are apparently only harmless saprophytes. The final evaluation of many organisms, for example, bacteroides, alcaligenes faecalis, streptococci and even *B. coli* awaits future additional research. Another source of confusion is terminology. The authors use that of Bergey's Manual of Determinative Bacteriology (1948).

This presentation is mostly clinical and characteristics of organisms which are significant clinically, such as the exotoxins, are discussed, but it is not important to here describe the bacteriologic characteristics of the organisms, many of which are intestinal. In this regard, the reader is referred to any standard text on bacteriology. In the small space allotted to this subject, this discussion must of necessity be brief and at times arbitrary, but we hope it serves as a useful clinical introduction to this complicated subject.

SALMONELLA TYPHOSUS

The typhoid bacillus is limited to man for its habitat, and thus typhoid fever, cannot be reproduced in animals. The disease is transmitted by active cases, convalescents or carriers. The organisms are usually discharged in the feces or urine.

Clinical Findings:—Symptoms appear from 8-14 days after ingestion of the organisms. The typhoid bacilli penetrate the intestinal mucosa and multiply in the cytoplasm of the plasma cells. Large numbers of bacilli are liberated when these cells die, finally producing a generalized infection. The onset of typhoid fever is usually insidious with malaise, headache and congestion of the upper respiratory tract. Cough, epistaxis or pleurisy may occur. Gastrointestinal symptoms are minimal and occur rather late in the disease when ulceration of Peyer's patches in the small intestine takes place. The characteristic "rose spots" occur on the chest and abdomen, usually between the tenth to the fifteenth day of the disease.

Bacteriemia can be demonstrated during the first week in about 90 per cent of cases. The agglutinin titer reaches diagnostic significance by the end of two or three weeks. The anti O titer by this time reach 1:500 and the anti H titers 1:1000 or more. About 8 per cent of stool cultures are positive three to four weeks after the onset of the disease. Urine cultures are positive in about a quarter of the cases.

Complications include; peritonitis from a perforated ulcer, hemorrhage from an intestinal erosion, meningitis, osteomyelitis (especially of vertebrae) and metastatic abscesses.

Carriers:—Organisms are excreted in urine or feces from chronic carriers. The incidence of carrier liability increases with age and is higher in females. In the first two decades of life only 0.3 per cent of cases become carriers. In the sixth decade, 10 per cent become carriers. The carrier state is five times more common in females than in males in the older age groups. The chronic carrier usually presents no clinical symptoms. Occasionally, however, a status of ill health persists in which a moderate degree of anemia may exist. In a few instances, bouts of increased movements lasting for a day or two and checked automatically occur. If the bacteria are cultivating in the gallbladder, attacks of distress may occur in the upper left abdomen, the case simulating an instance of chronic cholecystitis without stones.

Treatment:—The symptomatic treatment includes adequate amounts of foods in caloric values, vitamins, fluids and proteins. The sulfonamides are of no value and streptomycin is questionable. Aureomycin shows promise of being effective; penicillin is valueless. The cure of carriers is possible if the organisms are limited to the gallbladder or one kidney. Removal of these organs will effect a cure.

Immunization is effective in preventing typhoid. This consists of three doses of standard T.A.B. vaccine. The treatment of the symptomatic chronic carrier is often helped by typhoid vaccine and aureomycin. The former is best used subcutaneously in small doses and carried on over several months of time. In modified and continued technic, the T.A.B. vaccine may be used instead.

SALMONELLA

This group of organisms contains many members and is the most frequent source of food poisoning in man. The best known organisms are *S. typhimurium*, *S. paratyphi A*, *S. paratyphi B*, *S. paratyphi C*, *S. enteritidis*, *S. choleraesuis*. Endotoxins are produced in the intestine but the organisms have no exotoxins.

S. typhimurium is the most frequent cause of salmonella infection in man. Infections with *S. choleraesuis* have the highest mortality of the group. Many of these organisms are distributed throughout the animal kingdom but *S. paratyphi A*, *B*, and *C* are found only in man. Infection occurs both from animals and humans in the acute stage of the disease, or from carriers.

Clinical Findings:—Three principal clinical findings are encountered in salmonellosis: (1) Acute food poisoning with explosive onset of abdominal pain, nausea and diarrhea. The symptoms occur within 12 hours after ingestion of organisms and are produced by endotoxins liberated in the intestine. Recovery occurs in 2-4 days. (2) *S. paratyphi A*, *B*, *C* and *S. typhimurium* enteric types of infection. Fever in these cases resembles the typhoidal type. Gastrointestinal symptoms may be minimal. (3) The septicemic type has marked fever. This type has the highest mortality and is most often caused by *S. choleraesuis*. Paratyphoid *B* is distinctly pathogenic, the *A* type is not. It may occur as a chronic infection and be the producer of distinct body toxic states.

Diagnosis:—Any one of these organisms may be the cause of any of these types. The organism should be isolated from the stool. In chronic cases, agglutination of the patient's serum to known organisms is employed.

Treatment:—Fluids and adequate protein and calories when the patient is able to take them. In severe and prolonged types, the sulfonamides and streptomycin have been ineffective, aureomycin is effective.

Prevention:—Proper sanitation. Examination of food handlers for detection of carriers. Vaccination against all organisms in this group is impossible. Chronic infections do not seem to occur.

SHIGELLA

This group of organisms is responsible for bacillary dysentery, or shigellosis. The most important members are *Shigella dysenteriae* (Shiga), *Shigella paradysenteriae* (Flexner), *Shigella sonnei*, *Shigella ambigua* (Schmidt), *Shigella alkalescens* and *Shigella dispar*. *Shigella dysenteriae* produces an exotoxin and has the highest mortality rate of these organisms. They are transmitted by active cases, convalescents or carriers and are typically found only in man.

Clinical Findings:—The symptoms vary from mild abdominal cramps and a few loose stools to nausea, vomiting, fever, severe gripings, diarrhea and dehydration. Symptoms usually begin 12 hours after ingestion of the organism and reach their peak in 18-24 hours with severe diarrhea. With severe diarrhea, the stools at first are watery, later they contain chiefly blood, pus and mucus. Organisms are present in the stool and occur in large numbers in the intestinal ulcerations. The organisms are limited to the intestinal canal and the mesenteric glands, and septicemia does not occur.

An organism closely allied to the *B. dysenteriae* group (*paradysenteriae*) is the *B. metadysentery* group of which there are four biologic types. They are all toxin producers, capable of producing body toxic states with only minor intestinal disturbances and practically never diarrhea.

Diagnosis:—Stool culture, or cultures obtained by swabs of ulcers will identify the invading organism. The agglutination test is not significant, until convalescence—when rising titers may occur. Apparently normal people may have agglutinins in titers of 1:160 or even higher.

Chronic disease and carriers:—The acute stage of the disease may become chronic. Chronic infections with *shigella dysenteriae* usually produce invalids. Felsen maintains that bacillary dysentery is an important cause of chronic idiopathic ulcerative colitis. Carriers of *shigella* are important causes of dysentery epidemics. This is especially true of *shigella paradysenteriae* and the host is usually in apparent good health.

Treatment:—Sulfonamide drugs, both absorbable and nonabsorbable are very effective in the acute stage. Chronic bacillary dysentery is more difficult to cure. If the sulfonamides after adequate trial are ineffective, streptomycin by mouth and parenterally should be used. Aureomycin is effective.

Immunization:—At present, there are no vaccines in general use. Active immunization to the common types of shigella is possible. The specific polysaccharides of shigella are antigenic for man. A vaccine may be used in ulcerative colitis following an acute infection when the stools are positive. If not positive to any of the *B. dysenteriae*, a polyvalent form of several of the *B. dysenteriae* organisms may be employed, often with striking success. In *B. metadysentericus* an autogenous vaccine should be used, in small doses and over long periods of time.

MICROCOCOCCUS (STAPHYLOCOCCUS)

Staphylococci are capable of producing various types of exotoxins. Their enterotoxin is the only one with which we are concerned. This enterotoxin is usually produced by *staph. aureus* and results in food-poisoning. Food containing starch (pastries, etc.) becomes contaminated, usually from human sources, with staphylococci and, after incubation at room temperature for about ten hours, enough exotoxin is produced to cause symptoms within six hours after ingestion of the contaminated food.

Clinical Findings:—Onset is acute with nausea, vomiting, diarrhea and sometimes prostration. Recovery usually occurs in one or two days and mortality is rare. This infection may occur (usually the albus) as a chronic infection. Usually it is associated in the acid fermentative and combined intestinal toxemias. Mention has been made of the latter in the former articles^{1, 2, 3}.

Treatment:—Sulfonamides or penicillin are given for the acute condition. Vaccine of staphylococcus may also be used.

STREPTOCOCCUS

Streptococci of interest in gastrointestinal work comprise chiefly those belonging to Lancefield's group D. They are commonly called enterococci and consist of *S. faecalis*, *S. liquefaciens*, *S. zymogenes*, and *S. durans*. *S. faecalis* has both hemolytic and nonhemolytic strains. *S. zymogenes* and *S. liquefaciens* are hemolytic.

Strept. lactes type of organisms belongs to group N. They are nonhemolytic. These organisms are normal inhabitants of the intestinal tract but at times are the primary cause of enteric infections. This is especially true of the hemolytic strains. They are often present in suppurative lesions of the abdomen, but probably play a secondary role in these conditions. Occasionally, they are isolated from the blood stream in cases of subacute bacterial endocarditis. They are also capable of causing urinary tract infections. Very largely the streptococcus (excepting the viridans and high hemolytic forms) are secondary infections of no significance.

Treatment:—Both sulfonamides and penicillin are effective in these infections. Vaccines are of no benefit.

KLEBSIELLA PNEUMONIAE (FRIEDLANDER'S BACILLUS)

This may cause lesions in almost any part of the body. It is occasionally isolated in severe enteric infections, especially in children. These infections have a clinical course similar to that of bacillary dysentery.

The treatment of choice in these infections is streptomycin. In resistant or subacute cases streptomycin plus a sulfonamide and also autogenous vaccines may be of value.

THE COLI ORGANISMS

Escherichia coli and the paracoli organisms are related to the more virulent gram negative organisms already discussed—*Salmonella* and *Shigella*. Under normal conditions *B. coli* is not a pathogenic intestinal habitate but the high hemolytic form (*B. coli hemolyticus*) may be. In small infants, *B. coli* invading the upper small intestine may produce "summer diarrhea" with nausea, vomiting and dehydration. As the child grows older he acquires immunity to *B. coli*. In general, in its normal habitat *B. coli* can be regarded as a saprophyte. Even in peritonitis, the virulence of *B. coli* is probably not great, but it may potentiate the virulence of other associated organisms in an infection. In urinary tract infections, on the other hand, *B. coli* is often the causative factor.

Treatment:—The sulfonamides are effective in many instances and streptomycin is of great value, especially in urinary infections. *B. coli hemolyticus* in vaccine may be most helpful.

PARACOLI BACILLI

This group of organisms has characteristics of both *B. coli* and either shigella or salmonella. They are coli-like bacilli which ferment lactose poorly or not at all. They are found in normal feces, but are also capable of producing an acute enteritis in man.

Treatment:—Similar to other related groups; namely, the sulfonamides or streptomycin or vaccine.

AEROBACTER AEROGENES

A. aerogenes is the principal organism isolated from sour milk. It is found in normal stools and is nonpathogenic.

PROTEUS GROUP

These are often associated with *S. typhosa* or the dysentery bacilli. The principal organisms are *proteus vulgaris* and *P. morganii*. Both are capable of producing infantile diarrhea. *P. morganii* also can produce either shigella-like or salmonella-like infections in man. However, they are usually nonpathogenic when found in the stool. Treatment is effective with streptomycin.

ALCALIGENES FAECALIS

This organism is found in about 20 per cent of normal stools. The percentage rises in intestinal inflammations. *Vitrio alcaligenes* are normal inhabitants of the intestinal tract. As is common with other so-called intestinal saprophytes, they are capable at times of producing an enteritis. They also have been cultured from blood in association with salmonella. Occasionally, in children with a typhoid-like disease, these organisms have been cultured from the blood. This organism in associations may be a toxin producer in a chronic way. In association with parasitic *B. coli* an autogenous vaccine of both should be employed.

PSEUDOMONAS AEROGENOSA

This is an organism that is usually harmless when found in the intestine. It is frequently found in association with enteritis from some other cause. At times it is the causative agent in cases of enteritis and it has been reported as causing disease syndromes simulating both salmonellosis and cholera in children. It can cause fatal septicemia.

Treatment:—Sulfonamides, streptomycin.

CLOSTRIDIUM

Clostridium perfringens (B. welchii) is a normal inhabitant of the intestinal tract. It is not pathogenic while confined in its normal habitat. If it gains entrance to the body it produces a well-known gas gangrene. This organism is very important in the production of chronic excessive intestinal toxemia. If running over 8 to the high power field or when in active sporulation it is of infective importance, especially in the acid fermentation forms. Data pertaining to it has already been offered^{1, 3}. With other anaerobes, especially in association with parasitic *B. coli*, it takes on a distinctly pathogenic significance.

CLOSTRIDIUM SEPTICUM (VIBRION SEPTIQUE)

This produces gas gangrene through infected wounds.

Treatment:—The treatment of gas gangrene is by sulfonamides, penicillin, plasma, blood, polyvalent gas gangrene antitoxin.

CLOSTRIDIUM BOTULINUM

This produces food poisoning. The organism itself rarely invades man. Its toxicity depends on elaborated exotoxins in food (5 specific types are known). In the United States, Types A, B, and C have been described. Symptoms occur within 24 hours. Gastrointestinal complaints are usually absent. At first, there are general symptoms of malaise, headache, lassitude with no early fever. Later vision is disturbed due to involvement of the eye muscles supplied by the third cranial nerve. If the pharyngeal muscles are impaired speech and chewing are difficult. In fatal cases death usually occurs in three to seven days from cardiac failure or asphyxia. Chronic infections do not seem to occur.

Treatment:—Antitoxin containing the specific types such as found in this country (A, B and C). Purgation. Sustaining methods.

Vibrio cholera is capable of causing a mild infection similar to staphylococci or the parathyroid organisms, but usually it occurs in severe form. Cholera is essentially a disease of the small intestine. The incubation period varies with the number of organisms ingested from six hours to 2-3 days. There is little fever. The vibrio multiply in the small intestine and produce an exotoxin. The permeability of the mucosa is increased and body fluid, in great quantity, enters the bowel. Symptoms begin with severe abdominal pains, vomiting and copious diarrhea. The stool soon becomes free from fecal matter and contains small pieces of mucosa "rice water". The signs and symptoms of severe dehydration occur and if not combatted death supervenes from hemoconcentration, circulatory failure or coma.

Probably no chronic cases exist, but the vibrio may be found in the stools for 60-90 days following infection. Chronic infection or carriers do not seem to occur.

Diagnosis is made by identifying the vibrio in the stool. Agglutinin appears during convalescence.

Treatment:—The most important single measure is administration of adequate fluids, electrolytes and, in severe cases of acidosis, alkaloids. Without fluid therapy, mortality may be as high as 70 per cent. With proper treatment, the mortality is usually about 5 per cent. Sulfadiazine shortens the duration of the disease to four days. Streptomycin is effective in treatment and reduces the number of stools. Basic fuschin (Castellani) is also reported to be effective in reducing the mortality.

Prevention:—Adequate sanitation, vaccination with heat killed vaccine or vibrios treated with 0.5 per cent phenol. Antibodies appear about one week after the first injection.

BACTEROIDES

Bacteroides consist of many strains. They are nonsporulating, obligate anaerobes, both gram negative and gram positive. They are often the predominating organisms in the feces. Little is as yet known of these organisms. They are nonpathogenic for mice, guinea-pigs and rabbits, and it cannot be stated, as yet, as to whether these organisms may at times be pathogenic.

LEPTOSPIRA ICTEROHEMORRHAGIAE

These organisms produce infectious hemorrhagic jaundice (Weil's disease). In the Orient, the *L. hebdomadis* produces seven-day fever with absent or minimal jaundice. The organisms usually gain entrance by the mouth in food or water infected by urine of diseased rats, less frequently through the skin.

Incubation occurs in 9-19 days, usually about 10 days. Weil's disease begins with chills, fever, intestinal disturbances, muscular pains and albuminuria. At this time, the spirochetes are in the circulating blood. In 2-3 days icterus is noted with enlargement of the liver and spleen and skin hemorrhages. Convalescence begins on the 13-14th day. During this stage, antibodies have their highest titer in the serum, spirochetes disappear from the blood but remain rather abundant in the urine for a while longer.

Treatment:—Specific serum and penicillin.

MISCELLANEOUS INTESTINAL INFECTIONS

1. *Epidemic Diarrhea (Reimann's Disease):*—The etiology of this mild disease is probably viral. The incubation period is about 24 hours. The onset is sudden, with the usual symptoms of nausea, anorexia, diarrhea, vomiting and abdominal cramps. There is little or no fever and the disease usually terminates in one to four days. It may affect persons of any age, and often runs in broad epidemics, particularly seen in the autumn of the year. The virus (if such is the cause) probably has the respiratory tract as the portal of entry. Treatment is symptomatic and supportive.

2. *Epidemic diarrhea of new-born*:—This serious, often fatal disease is also probably caused by a virus. It attacks infants during the first month of life and is very contagious. The mortality is high. Symptoms include a severe watery diarrhea with its accompanying complications, namely weight loss, inanition, dehydration and acidosis. Treatment is supportive with special care directed towards maintenance of fluid and electrolyte balance. Strict quarantine is essential, especially in institutions.

3. *Moniliasis*:—Pathogenic strains of *candida albicans* have been isolated from the intestines of asymptomatic people. It is often seen in the stools of patients with sprue and pernicious anemia. It is probably a secondary invader when the intestinal tract is infected with other organisms; but is capable of producing a mild intestinal infection in man. Infections are also seen in skin, nails and bronchopulmonary regions.

Treatment:—Consists of gentian violet intravenously, iodides and small doses of immune rabbit serum.

South American blastomycosis (*blastomyces brasiliensis*) is also capable of producing visceral infections in man. This disease has not been encountered outside South America. The visceral manifestations of this infection include involvement of any abdominal organ; liver, pancreas, intestine, spleen.

Treatment:—The use of the sulfonamide drugs over many months is reported to give good results. A vaccine is also available for treatment.

REFERENCES

1. Bassler, Anthony: Biotoxic Intestinal Conditions of the Acid Fermentation Type. *Rev. Gastroenterol.* **16**:708-720. (Sept.), 1949.
2. Bassler, Anthony: Biotoxic Intestinal Conditions of the Putrefactive Type. *Rev. Gastroenterol.* **16**:764-770. (Oct.), 1949.
3. Bassler, Anthony: Biotoxic Conditions of the Combined Type. *Rev. Gastroenterol.* **16**:846-851. (Nov.), 1949.

GASTRIC ULCER WITH LIVER DISEASE

REPORT OF A CASE

IRVIN DEUTSCH, M.D.

Dallas, Tex.

The incidence of peptic ulcerations in hepatic cirrhoses has been commented upon and reported but there are few published cases dealing with the simultaneous

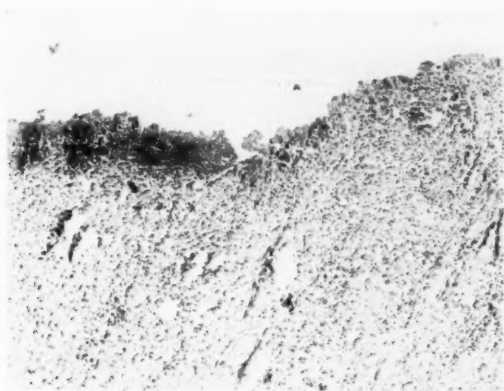


Fig. 1—Gastric ulcer, x100.

occurrence of these conditions and severe jaundice with postmortem reports and microscopic section studies. Morrison¹ found 72 per cent of 50 patients with peptic

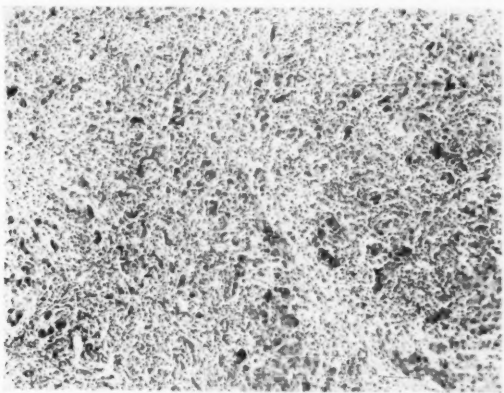


Fig. 2—Liver, x100.

ulcer to have liver dysfunction. Reymont² states that in experimental ulcer in dogs, "liver injury must be due to fairly specific cause". Barker and Capps³ re-

ported peptic ulceration in a few cases of infectious hepatitis and Berg and Jobling⁴ in their experimental study suggest the possibility that alterations in the function of the liver and bile secretion may be important factors in the etiology of peptic ulceration.

This report deals with one such case and until the etiology of gastric ulcer is fully determined, the coincidence of hepatitis and ulcer is worthy of consideration as the same toxic causes may operate on both liver and gastric mucosa.

Case Report:—Mrs. G. W., age 64 was referred to me for a gastrointestinal series with the following history: Painless jaundice for the past six weeks. The

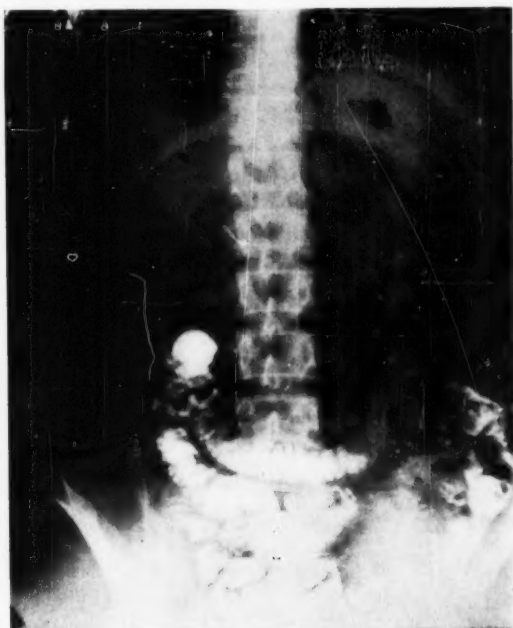


Fig. 3—Note splenic mass. Liver shadow slightly enlarged.

working diagnosis was carcinoma of the head of the pancreas. There were a number of features that the referring physician felt needed further analysis. (1) the liver was felt to be enlarged, (2) the stools were never acholic and, (3) occult blood was constantly present (4 plus) in the stools.

The findings of my radiographic examination were as follows: The flat film of the abdomen shows no evidences of parenchymal calcifications or concretions. There is a mass in the region of the spleen which contains an area of increased radiodensity. The liver shadow is within normal limits.

Following the ingestion of a barium meal, a filling defect is noted in the posterior wall of the stomach in the pars media and an extrinsic filling defect in

the pyloric antrum. The duodenal bulb and curves presented normal appearances. The remainder of the examination is noncontributory.

Conclusions:—Due to the combination of findings noted above; the possibility of a retroperitoneal growth which had eroded into the stomach is to be considered. In view of the fact that carcinomas rarely metastasize to the spleen, this may be a lymphosarcoma.

A very short time later this patient was admitted in terminal coma to the Good Samaritan Hospital, Suffern, N. Y. She was posted within 3 hours of her death. Because of the short time in the Hospital before exitus, very little labora-



Fig. 4—Pressure defect, antrum of the stomach. Irregularity of the lesser curvature (with filling defect).

tory work was done but an icteric index of 188 was found; positive urobilin; occult blood (4 plus), etc. The A-G ratio and total proteins were not determined.

The autopsy was performed by Dr. S. D. Beers on Jan. 25, 1948.

The anatomical diagnosis is as follows: Cholemia; cirrhosis of the liver; chronic passive congestion of the spleen; fibrosis of the pancreas; gastric ulcer.

Final Diagnosis:—Same as gross pathology except that pancreas was not remarkable.

The pertinent portions of the autopsy report, read as follows:—

Heart:—Natural in size, shape and configuration. Not remarkable on section. Microscopically, shows the presence of a moderate amount of fibrous tissue located within the muscle fibres.

Liver:—About half normal size. Surface is yellow-brown in color and nodular throughout. The nodules vary in size from pinpoint to 2 mm. in diameter. On section the liver is mottled yellowish-brown with areas of red-brown. Microscopically, the liver is divided into compartments by rather dense fibrous tissue.

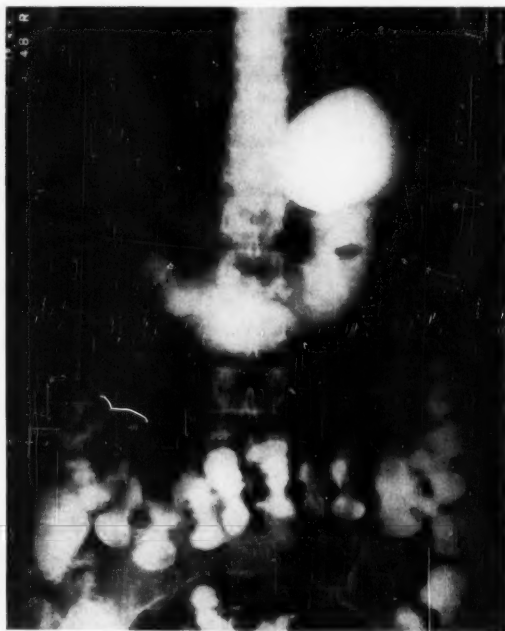


Fig. 5—Best view (supine) to show characteristic of "meniscus" of Carman.

Associated with the immediate vicinity of the bile ducts is an accumulation of numerous polys. The bile ducts and canaliculi contain a large amount of bile.

Gallbladder and ducts:—The gallbladder is not enlarged, not thickened. The hepatic ducts and common bile ducts were dissected free and found to be patent throughout. No evidences of stones or carcinoma grossly.

Pancreas:—Normal in size and shape but feels firmer than usual. It cuts with some increased resistance but the gross architecture does not appear disturbed. Microscopically, not remarkable.

Gastrointestinal Tract:—Lower end of esophagus is normal. Stomach contains about 100 cc. of coffee ground material mixed with mucus. Mucosa pink in color. About halfway down the lesser curvature is an ulcer crater measuring approximately 1 cm. in diameter and about 1.5 mm. in depth. There is no evidence of clotted blood in the crater and the crater itself is whitish-yellow. The pylorus, duodenum and small intestines are not remarkable grossly. The cecal end of the ascending colon is adherent to the peritoneal surface surrounding an incisional hernia. Microscopically, the section through the stomach ulcer described in the gross shows complete erosion of the mucosa. The base of the ulcer is made up of necrotic material with an accumulation of a few polys and a large number of lymphocytes. Deeper in the musculature is also an infiltration of lymphocytes associated with fibrosis.

Spleen:—Twice normal size and lobulated. It is dark red in color. On section the cut surface bulges, is extremely soft and is reddish-black in color. Microscopically, the organ is not remarkable except for marked chronic passive congestion.

Genitourinary Tract:—Not remarkable grossly. Microscopically, the kidneys show a moderate to large amount of bile pigment. Some of the pigment appears in fairly large masses in the lumen of the tubules. There is also some intracellular pigment. The glomeruli are not remarkable.

Pathologic Summary:—This woman's liver showed cirrhosis with acute and subacute changes in the immediate vicinity of the bile ducts. There was a large gastric ulcer and chronic passive congestion of the spleen.

Comment:—The etiology of the findings in this case were never determined. Experimentally it has been shown that certain compounds, particularly cincophen produce pathologic changes of the type found in this case in both liver and stomach. This report is submitted in the hope that others, more capable and better equipped, will attempt to fully evaluate the role of the liver and substances which produce liver damage upon the pathogenesis of ulceration within the upper intestinal tract.

SUMMARY

1. The coexistence of liver disease with gastric ulcer has been noted.
2. The dangers and pitfalls of solely clinical or radiological diagnostic methods is noted. More postmortem studies are needed for the proper elucidation of clinical radiological syndromes.
3. The need for further study is emphasized.

REFERENCES

1. Morrison, L. M.: Liver Dysfunction in Peptic Ulcer. *Rev. Gastroenterol.* 9:448, 1942.
2. Reymont: Study of Liver Function in Experimental Peptic Ulcer. *Am. J. Digest. Dis.* 7:65, 1940.
3. Barker, H. M. and Capps, R. B.: Gastrointestinal Manifestations of Acute and Chronic Infectious Hepatitis. *Rev. Gastroenterol.* 14:9, 1947.
4. Berg and Jobling: *Ann. Surg.* 1940.

EDITORIAL

SALUTE TO SOLOMON R. KAGAN, M. D.

This month, Solomon R. Kagan, M.D., of Boston, Mass., well-known medical historian and author of several books of historical interest as well as many scientific and historical papers, celebrates his sixtieth birthday.

Of particular interest to our readers are his two early publications on the treatment of peptic ulcer. In 1925-26, in "Clinical Medicine", Dr. Kagan reported favorably on the use of colloidal aluminum hydroxide in the treatment of hyperchlorhydria and gastric ulcer. This work antedates the publications by other authors on this form of therapy.

Among Dr. Kagan's other publications are: "The Modern Medical World"; "American Jewish Contributions to Medicine in America"; "Leaders of Medicine"; "Contributions of Early Jews to American Medicine" and an excellent work on Fielding H. Garrison. A volume shortly to be published by Dr. Kagan will be a jubilee volume.

In spite of physical infirmities resulting from a serious heart condition, Dr. Kagan is actively interested in supporting the new nation, Israel. He is well versed in Biblical and Talmudic literature, knows Hebrew well and is ever eagerly delving in historical works.

Congratulations are extended to a noble character, a historian and a gentleman.

HYMAN I. GOLDSTEIN

CHAPTER ACTIVITIES

NEW YORK CHAPTER

Dr. Franz J. Lust, Chairman of the Program Committee of the New York Chapter of the National Gastroenterological Association announces that the next meeting of the Chapter will be held at the New York Academy of Medicine on Monday evening, 9 January 1950.

The program of the evening will consist of "Mechanism of Jaundice" to be presented by Dr. Franklin M. Hanger, Attending Physician, Presbyterian Hospital and to be discussed by Dr. Harry J. Jacobi, Attending Physician, Lenox Hill Hospital and Dr. Gerald Klatskin of the Yale University School of Medicine; a paper on "Management of Massive Hemorrhage from the Esophagus" by Dr. J. William Hinton, Director of Surgery, Postgraduate Hospital and discussed by Dr. Thomas S. Winslow, Roosevelt Hospital.

Members of the New York Chapter of the National Gastroenterological Association and members of the Association in surrounding areas as well as non-members, are cordially invited to be present at this interesting meeting.

NEWS NOTES

ANNUAL MEETING OF THE NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The Annual Meeting of the National Gastroenterological Association was held at The Somerset in Boston, Mass. on Monday, 24 October 1949.

Reports on the status of the Membership, THE REVIEW OF GASTROENTEROLOGY, the Program, the Treasury, the work of the Research Committee and the Committee on Standards and Ratings were made by the chairmen.

Amendments to the Constitution and By-Laws were adopted at the meeting.

CONVOCATION CEREMONY

A very impressive Convocation Ceremony, at which Fellowship certificates were awarded to those who had been newly elected or advanced to Fellowship in the National Gastroenterological Association during the past year, was held at The Somerset in Boston, Mass. immediately following the Annual Meeting on Monday, 24 October 1949.

The presentation of certificates to the candidates was made by Dr. William Reid Morrison, President of the Association. Fellowship keys were presented to the members of the National Executive Board in recognition of their years of faithful service to the organization.

The following invocation and an inspiring address were delivered by the Rt. Rev. Patrick J. Lydon, at the Convocation Ceremony.

INVOCATION

Heavenly Father, Who art the Great Physician of mankind, Whose healing hand is evident everywhere in nature, we beseech Thee to enlighten our minds and touch our hearts with Thy sweet compassion that we may be willing and sympathetic agents for Thee in healing the ills of our fellowmen. Keep us humble that we may never fancy that it is our own skill that cures but refer all our success to Thy merciful cooperation with our efforts.

Permit us never to forget the dignity of each individual patient who was formed and fashioned by Thy infinite hands and thereby became Thy child and our brother, Jesus Christ, Thy Divine Son, Whom Thou didst send into this world for our redemption, went around healing all manner of disease and bids us to behold Himself in the sick and the poor. May we so fulfill our great ministry as to merit His essential assistance and the eternal reward He promised: "Inasmuch as ye did it to the least of these My brethren, ye did it unto Me." Amen.

CONVOCATION ADDRESS

Any life that is to be lived to good purpose must have some ideal, some aim to direct it. An ideal is a spiritual thing. You cannot dissect it with your scalpel. It eludes your touch. Yet it is something very real. It rules our lives and gives the incentive for overcoming difficulties, for living nobly and even for dying bravely. Every physician by the very nature of his profession must be a spiritual man, for his whole life is spent in handling mysteries that are above material experience or explanation. It is some spiritual inspiration that enables him to diagnose correctly ills that he can neither see nor touch. He is forever working in the dark, prescribing treatments according to his best knowledge but never knowing if they shall issue in life or death. A great many times he has done his best only to realize how little that is, and then to find that in some mysterious way he has been the agent bringing health and life.

The physician's ideal is the loftiest and most noble, but like all human characteristics it is exposed to deterioration and decay. And if a physician loses or lessens his contact with the spiritual, in that same degree he surrenders his ideals. If he becomes self-sufficient and self-centered so that he relies solely on his own knowledge and skill he must indeed be spiritually blind, for the true physician

is ever confronted with his own impotence and limited knowledge in the face of serious disease. When a man loses this realistic appraisal of himself, then his work becomes simply a job to earn the best livelihood he can. This is the ultimate in failure, for he who consecrated his life to live only for the good of others is now living for himself alone.

Of old our Blessed Savior addressed a father who was pleading for the miraculous cure of his son with the words, "Unless you see signs and wonders you will not believe." Not a day passes that a physician does not see before his very eyes great signs and wonders wrought by the God of creation through his ministry. He should be a spiritual man, a man of prayer, who regards himself as an instrument in the Hand of God; God working through him.

Then his life is lifted out of the marketplace and is ennobled and consecrated. He becomes a co-worker with the Almighty, an extension of His healing power to cure the ills of his fellowman. His instruments and his prescriptions then take on an aspect of reverence, for they enable him to do God's work in healing sickness and infirmity. His patients, too, take on a new relationship to him, for they are now his brothers in Christ. And how different then his whole day becomes, for every sick call is an opportunity to work with God, a chance to exercise with God His wonderful work of healing the sores and sickness of mankind. The consecrated doctor is surrounded with an atmosphere of reverence and his patients love him. He becomes not only the healer of the body but of the soul. Men confide to him with confidence the inmost secrets of their hearts and with the understanding and sympathy of the Great Physician he pours healing balm into their broken lives that is good for both soul and body.

Such a consecrated physician may never become wealthy with gold, but he is rich in the esteem of those whom he serves both as friend and physician, and he goes on his way with a song in his heart and a prayer on his lips, bringing happiness and goodness wherever he goes.

This ideal of a consecrated life is within the reach of all, but unfortunately in this material age it has been surrendered by many, with the consequent irreparable loss of dignity and esteem for the great office of physician. I plead with you to bring it back and live it in your own lives before it is too late. No other life is so noble, so satisfying, so filled with consolations as that of the consecrated physician, God's instrument for poor suffering men.

ANNUAL MEETING OF THE NATIONAL COUNCIL

The Annual Meeting of the National Council of the National Gastroenterological Association was held on Tuesday afternoon, 25 October 1949 at The Somerset in Boston, Mass. with Dr. Roy Upham, Secretary-General presiding.

After reports from the various Chapter representatives, the Council proceeded to the reelection of the following members of the Executive Board for a period of four years: Dr. Anthony Bassler, New York, N. Y.; Dr. Elihu Katz, New York, N. Y. and Dr. Roy Upham, New York, N. Y. Dr. Charles W. McClure was elected to the Executive Board for a period of four years succeeding Dr. G. Randolph Manning who was elected an Honorary Fellow.

The names of Dr. G. Randolph Manning, Dr. Frank C. Yeomans and Lord Alfred Webb-Johnson were presented to the Council for election as Honorary Fellows and they were elected unanimously.

Dr. Anthony Bassler reported on behalf of the Constitutional Revision Committee advising that a draft of the Constitution had been presented to the Executive Board and had been referred back to Committee for further consideration.

The Council then voted to take a stand on the matter of compulsory health insurance and adopted a set of resolutions opposing them.

COURSE IN GASTROINTESTINAL SURGERY

Climaxing a highly successful Convention, the National Gastroenterological Association in cooperation with Tufts Medical College and the First and Second Surgical Services of the Boston City Hospital conducted a Course in Gastrointestinal Surgery at the Boston City Hospital on 27, 28, 29 October 1949 for 250 men. Many other applications had to be turned down because of limitations of space.

Those who attended the Course were highly enthusiastic of the results and expressed their desire to see the Association continue sponsoring Courses of this nature.



Principals participating in the Postgraduate Course in Gastrointestinal Surgery. Left to right, Dr. William Reid Morrison, Chairman, Committee on Arrangements, Lord Webb-Johnson, President, Royal College of Surgeons, London, England and Dr. Owen H. Wangensteen, who directed the Course.

The Course was under the personal direction of Dr. Owen H. Wangensteen of the University of Minnesota, who contributed much to the success of the undertaking.

Dr. William Reid Morrison, past President of the National Gastroenterological Association was the chairman of the Committee on Arrangements for the Postgraduate Course.

ANNUAL MEETING OF THE NATIONAL EXECUTIVE BOARD

The Annual Meeting of the Executive Board of the National Gastroenterological Association was held at The Somerset in Boston, Mass. on Wednesday, 26 October 1949.

The Secretary-General, Dr. Roy Upham reported that the Council had the previous day, elected four of its members to the Executive Board for a term of four years.

The Los Angeles and New York Chapters presented for ratification, the applications for membership of the following, which applications were accepted as follows: Dr. Paul H. Pernworth, Compton, Calif., Member; Dr. Benjamin Kogut, Brooklyn, N. Y., Member; Dr. Benjamin Kopp, New York, N. Y., Member.

The following were elected to membership at large in the National Gastroenterological Association: Dr. John Henry Fodden, Halifax, Nova Scotia, Associate Fellow; Dr. Stuart E. Krohn, Utica, N. Y., Fellow and Dr. Fred E. Manulis, Palm Beach, Florida, Fellow.

FOURTEENTH ANNUAL CONVENTION

Those who attended the Fourteenth Annual Convention in Boston, Mass., were unanimous in their acclaim of the program and all were agreed that this was the finest Convention from all points of view which the National Gastroenterological Association had ever had.

The success of the Convention was due to the untiring efforts of the past President, Dr. William Reid Morrison of Boston, Mass. who was ably assisted by the other members of the Program Committee, Dr. I. R. Jankelson and Dr. Charles W. McClure, Boston, Mass.; Dr. Anthony Bassler, Dr. Roy Upham and Dr. Samuel Weiss, New York, N. Y.

Full credit for bringing so many outstanding speakers to the scientific sessions must be given to Dr. Morrison who worked diligently to make the Convention a success.

Mention should also be made of Dr. Morrison's capable assistants who worked with him, among whom are Dr. Newton C. Browder, Dr. Thomas W. Wickham, Dr. Joseph H. Burnett, Dr. George W. Papen, Dr. Stanley Mikal and the other members of the Boston Chapter who contributed their efforts.

The sincere thanks of the ladies who attended the Convention go to the Ladies Activity Committee consisting of Mrs. Francis T. Jantzen and Mrs. Anthony Bassler, co-chairmen, Mrs. D. Joseph Duggan, Mrs. Sidney C. Wiggin, Mrs. Alexander J. A. Campbell, Mrs. Newton C. Browder and Mrs. William Reid Morrison for their wholehearted cooperation and support.

These ladies arranged the lovely luncheon to Lady Webb-Johnson at the Harvard Club on Tuesday, 25 October 1949 and the sightseeing tour around Boston for the wives of members and guests attending the Convention.

The papers presented together with the discussions will appear in *THE REVIEW OF GASTROENTEROLOGY* during 1950.

PRESIDENT'S ANNUAL RECEPTION

The Annual Reception tendered to the President was again made possible this year through the kind cooperation of Winthrop-Stearns, Inc.

The Reception which was opened to members of the Association and their guests was held on Monday evening, 24 October 1949 at The Somerset.

Dr. William C. Jacobson, President of the New York Chapter and Chairman of the Arrangements Committee thanked Winthrop-Stearns, Inc. for the Reception as did Dr. William Reid Morrison, the President.

ELECTION OF OFFICERS

At the Annual Meeting of the Executive Board of the National Gastroenterological Association the following new officers of the Association were elected: President, Dr. Horace W. Soper, St. Louis, Mo.; President-elect, Dr. C. J. Tidmarsh, Montreal, Canada; First Vice President, Dr. William W. Lermann, Pittsburgh, Pa.; Second Vice President, Dr. Harry M. Eberhard, Philadelphia, Pa.; Third Vice President, Dr. Charles W. McClure, Boston, Mass.; Fourth Vice President, Dr. Felix Cunha, San Francisco, Calif.; Secretary-General of the National Council, Dr. Roy Upham, New York, N. Y.; Secretary, Dr. Sigurd W. Johnsen, Passaic, N. J.; Treasurer, Dr. Elihu Katz, New York, N. Y. Members of the Executive Board including the above are Dr. Anthony Bassler, New York, N. Y.; Dr. Benjamin M. Bernstein, Brooklyn, N. Y.; Dr. William C. Jacobson, New York, N. Y.; Dr. William Reid Morrison, Boston, Mass.; Dr. Henry A. Rafsky, New York, N. Y.; Dr. F. H. Voss, Phoenicia, N. Y. and Dr. Samuel Weiss, New York, N. Y.

ANNUAL BANQUET

The Annual Banquet of the National Gastroenterological Association was held at The Somerset in Boston, Mass. on Tuesday evening, 25 October 1949.

Dr. Roy Upham, Secretary-General of the National Gastroenterological Association was the toastmaster of the evening. The invocation was delivered by Rabbi Herman H. Rubenowitz, President of the Rabbinical Assembly of Boston and the benediction by the Rt. Rev. Raymond A. Heron, Suffragan Bishop of the Episcopal Diocese of Massachusetts.

At the Banquet a check for \$1,000.00 was presented to the Association for the Endowment Fund by Dr. Anthony Bassler, Honorary President. This represented the surplus from the 50th Anniversary Dinner given him by his friends and members of the Association last May. The money was originally presented to Dr. Bassler to be used as he saw fit and he generously contributed it to the Endowment Fund of the Association for which he received the sincere thanks of the entire membership.

A check for \$100.00 and a Certificate of Merit representing the first prize in our 1949 Prize Award Contest were presented to Dr. Julian A. Sterling of

Philadelphia, Pa. for his contribution on "The Termination of the Common Bile Duct". The presentation was made by Dr. C. J. Tidmarsh, Vice President of the Association.

On behalf of the National Gastroenterological Association, Dr. William Reid Morrison, President, presented a medallion containing the seal of the Association and inscribed on the reverse side "in recognition of his services to humanity" to Lord Alfred Webb-Johnson, President of the Royal College of Surgeons, who was guest of honor at the Banquet.

Through the courtesy of Mr. James H. Rand, Jr., President and Chairman of the Board of Remington Rand Inc., Remington electric shavers were distributed to the guests attending the Banquet. Unfortunately, the arrangement committee received only 250 shavers and hence several of the guests did not receive them.

To them we extend our sincerest apologies and point out that the omission was purely unintentional and the result of circumstances beyond our control.

Among the other distinguished guests of the evening were Dr. Frank Lahey of the Lahey Clinic, Boston, Mass.; Dr. J. M. T. Finney, Jr. of Johns Hopkins Hospital, Baltimore, Md.; Dr. Mary Moore Beatty of the Boston City Hospital; and the Most Rev. Richard J. Cushing, Archbishop of Boston who spoke on "Socialized Medicine".

TELEVISION AT THE COURSE IN GASTROINTESTINAL SURGERY

Through the kind cooperation of E. R. Squibb & Sons and the R.C.A.-Victor Division of the Radio Corporation of America, those attending the Course in Gastrointestinal Surgery were able to view actual operations performed in two Amphitheatres of the Boston City Hospital, which were projected on a large six by eight foot screen in another Amphitheater.

The National Gastroenterological Association wishes to thank E. R. Squibb & Sons, R.C.A.-Victor and Dr. Newton C. Browder and Dr. George W. Papen as well as those surgeons who operated before the television cameras for their tireless efforts in making this television transmission a success.

RESOLUTIONS ON COMPULSORY HEALTH INSURANCE

At the Annual Meeting of the National Council of the National Gastroenterological Association the following resolutions on compulsory health insurance were adopted:

"WHEREAS, under a system of free enterprise the American Medical Profession has established the world's highest standard of scientific performance, treatment, and research, thereby helping the United States to become the healthiest major nation in the world and,

"WHEREAS, the benefits of American medicine are available to the people of this country through budget-basis voluntary health insurance, the best health insurance which exists in the world; and

"WHEREAS, the experience of all countries where government has assumed control of medical services has shown that there has been a gradual erosion of free enterprise and a progressive deterioration of medical standards and medical care to the detriment of the health of the people, NOW, THEREFORE,

"BE IT RESOLVED, That the National Gastroenterological Association does hereby go on record against any form of compulsory health insurance or any system of political medicine designed for national bureaucratic control;

"That a copy of this resolution be forwarded to the President of the United States, to each Senator and Representative from the State of New York and that said Senators and Representatives be and are hereby respectfully requested to use every effort at their command to prevent the enactment of such legislation."

In Memoriam

We record with profound sorrow the passing of Dr. William E. Fitch, Pelham, N. Y., Associate Fellow of the National Gastroenterological Association.

We extend our deepest sympathies to the family of the deceased.

What other Christmas present can you name that...



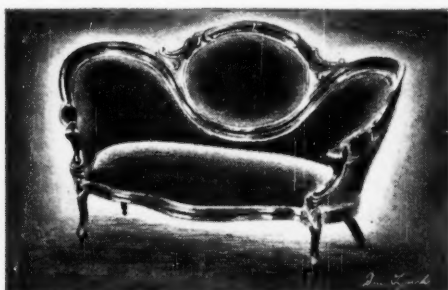
... you wouldn't want to exchange



... comes in so handy on rainy days



... never wears out



... keeps increasing in value

... is so quick and easy to buy
... pleases everyone on your list
AND ... gives itself all over again
(with interest) ten years later?



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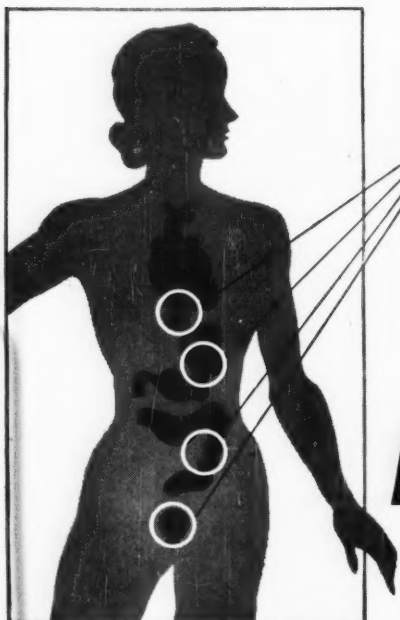
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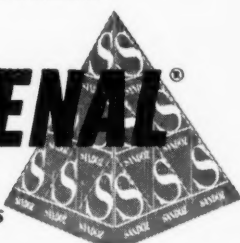
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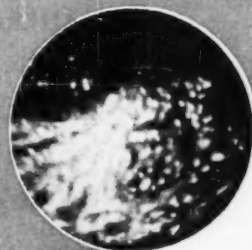
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Gastrophotograph of mucosa coated by Resinat.



Gastrophotograph of mucosa coated by other substance.

1. Weiss, S., Espinal, R.B. & Weiss, J.: Therapeutic Application of Anion Exchange Resins in the Treatment of Peptic Ulcer, Review of Gastroenterology, 16:501-509, June, 1949.

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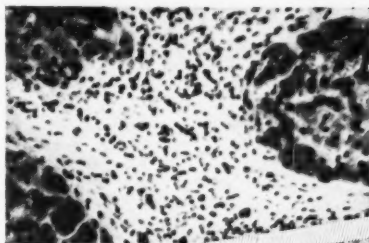
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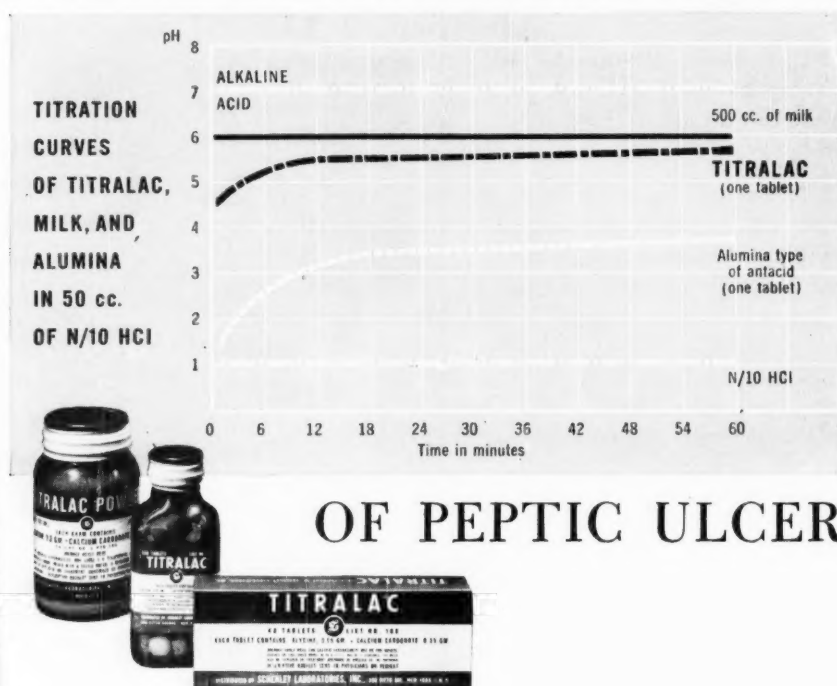


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TITRALAC tablets are supplied in bottles of 100 and convenient-to-carry packages of 40. TITRALAC powder is also available, in 4-oz. jars.

REFERENCES

1. Rossett, N. E., and Flexner, J.: *Ann. Int. Med.* 18: 193 (1944).
2. Freezer, C. R. E.; Gibson, C. S., and Matthews, E.: *Guy's Hosp. Reports* 78: 191 (1928).
3. Aaron, A. H.; Lipp, W. F., and Milch, E.: *J. A. M. A.* 139: 514 (Feb. 19) 1949.
4. Kirsner, J. B., and Palmer, W. L.: *Illinois M. J.* 94: 357 (Dec.) 1948.
5. Kimball, S.: in *Practice of Medicine* (Tice), Hagerstown, Md., W. F. Prior Company, Inc., 1948; p. 210.
6. Special Article: *M. Times* 76: 10 (Jan.) 1948.

* The formula of TITRALAC is one whose composition and mode of action are recognized by U.S. Patent No. 2,429,596.

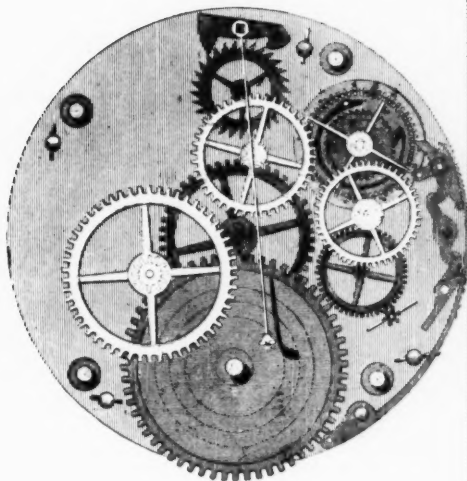
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